## Space Weather Forecast

Issued on Monday, 06 November 2023 at 13:30 Local

**This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales**

---

**Space Weather Forecast Headline: Risk of G1/Minor Storms either late 06Nov or on 07 Nov. Chance of M-class flares.**

**Analysis of Space Weather Activity over past 24 hours**
**Solar Activity:** Moderate, with one Moderate class flare from an active region in the southeast quadrant. This is one of two notable regions in the southeast, with the other region relatively mature and inactive. The remaining three regions all appear weak and benign. No Earth-directed CMEs (coronal mass ejections) have been observed on available imagery.

**Solar Wind / Geomagnetic Activity:** Residual effects of the recent CME are being observed, with solar wind speeds between at slightly elevated levels on a generally declining trend. Total magnetic field strength (IMF) has eased from a peak of at very strong levels to moderate levels as the Earth moves out of the magnetic cloud, effectively a magnetised bubble, which followed the CME. The important north-south component of the magnetic field initially varied strongly, but the fluctuations have eased back to moderate oscillations. Geomagnetic activity started at G1/Minor Storm or G2/Moderate Storm levels due to the effects of the CMEs, with two G3/Strong Storm intervals between 06/1500-2100 UTC. Activity reduced to mainly Active levels from 06/0000 UTC, with only one G1/Minor Storm interval.

**UK Aurora Analysis:** Aurora was observed overhead across Scotland, Northern Ireland, Wales and much of northern and central England overnight 05 into 06 Nov. Aurora was also visible towards the northern horizon further south with sightings for much of southern England.

**Energetic Particles / Solar Radiation:** The count rate of energetic particles (high energy protons) remained close to background levels with no solar radiation storms observed.

**Four-Day Space Weather Forecast Summary**
**Solar Activity:** Low solar activity is expected through the next four days, with a risk of isolated Moderate activity, mainly from the two large regions in the eastern hemisphere.

**Solar Wind / Geomagnetic Activity:** No Earth-directed CMEs are forecast through the forecast period. A fast solar wind is the forecast to connect with the Earth, either late on 06 Nov or during 07 Nov, with elevated speeds of around 500-600 km/s expected to then continue until at least 08 Nov. Geomagnetic activity will start mainly Unsettled to Active, but then decline ahead of the onset of the fast solar wind. This could lead to isolated G1/Minor Storm intervals, with a decline to mainly Unsettled to Active.

**UK Aurora Forecast:** Geomagnetic activity is easing with only limited aurora possible for parts of northern Scotland overnight into 07 Nov.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2023. All Rights Reserved.

# Met Office Space Weather Forecast

**Energetic Particles / Solar Radiation:** The count rate of energetic particles (high energy protons) is forecast to persist at around background with no solar radiation storms occurring.

**Geomagnetic Storms:**

| Geo-Magnetic Storm Probability (Exceedance) | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Minor or Moderate | G1 to G2 | Yes | 60 | 40 | 10 | 1 |
| Strong | G3 | No | 1 | 1 | 1 | 1 |
| Severe | G4 | No | 1 | 1 | 1 | 1 |
| Extreme | G5 | No | 1 | 1 | 1 | 1 |

**Radio Blackouts - X Ray Flares:**

| X Ray Flares Probability | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | R1-R2 M Class | Yes | 30 | 30 | 30 | 30 |
| Very Active | R3 to R5 X | No | 5 | 5 | 5 | 5 |

**Solar Radiation Storms - (High Energy Protons):**

| Radiation Storms Probability (Exceedance) | Level ($cm^{-2}$ $sr^{-1}$ $s^{-1}$) | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | ≥ S1 | No | 5 | 5 | 5 | 5 |
| Very Active | ≥ S3 * | No | 1 | 1 | 1 | 1 |
| * S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$) | | | | | | |

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2023. All Rights Reserved.